

### **FCCU Process Description**

The Fluidized Catalytic Cracking Unit (FCCU) is a refinery process unit used for the production of gasoline. Heavy oil, which is used as the feedstock, is catalytically cracked in a fluidized catalyst bed to produce C3 olefins, C4 olefins, and isobutanes. In the cracking reactor, heavy carbonaceous materials (coke) become deposited on the catalyst, requiring continuous regeneration. The catalyst is circulated to a fluidized bed regenerator where these deposits are combusted. Most of the catalyst particles entrained in the regenerator flue gas are then removed in two stages of cyclones within the regenerator vessel and then are returned to the fluidized bed reactor.

At the Trainer Refinery, the FCCU control devices include a CO Boiler for CO reduction, an Enhanced Selective Non-Catalytic Reduction (eSNCR) unit for NO<sub>x</sub> reduction, an electrostatic precipitator for PM reduction and a wet gas scrubber for PM and SO<sub>2</sub>.

### **Catalytic Reforming Unit (Platformer Unit)**

The refinery operates one Catalytic Reforming Unit. The purpose of the Platformer is to upgrade low octane feed sources, Heavy Naphtha and Heavy Isocrackate, into a high-octane gasoline component and hydrogen gas. The feed combined with hydrogen recycle gas is heated and passed over a platinum catalyst, where it is converted from low octane naphtha to a gasoline-blending component with a design research octane number in the range of 97 - 101.

### **SRU**

The Claus Sulfur Recovery Unit is designed to react feed H<sub>2</sub>S and SO<sub>2</sub> into recoverable sulfur using two trains in parallel. Normally only one train is required to be on-line. The feeds to the unit are sour water gases and acid gases from the Sour Water Stripper and the Amine Unit. Each train consists of a thermal reactor, three catalytic reactors, a steam generator and a 4 pass sulfur condenser. Medium and low-pressure steam is generated in the condensers. The sulfur product is stored in a common heated pit until shipped out by railcar.

The Scot unit is designed to treat the tail gas from both trains of the Sulfur Recovery Unit. The Scot Unit reduces the H<sub>2</sub>S content in the tail gas before it is sent to the incinerator stack. The combination of the Sulfur and Scot Units recovers about 99.8% of the sulfur in the feed streams. The Scot Unit consists of an in-line burners, catalytic reactor, quench tower, amine absorber, stripper, and incinerator.

### **Bypass Lines**

The FCCU does not have any bypass lines. The Platformer Chlorsorb Unit line was not bypassed during this reporting period. The Sulfur Recovery Unit line was not bypassed during this reporting period.

**Attachment 4 – Excess Emissions and Monitoring Systems Performance Report (40 CFR 60.7**  
**(c)**

**Main Flare Excess Emissions Report**

Start Date/Time	End Date/Time	Magnitude of Emissions (ppm H <sub>2</sub> S)	SSM Related?	Nature and Cause of Malfunction	Corrective Action Taken/Preventative Measures
01/01/15 00:00	01/07/15 23:00	170.4-603.9	No	N/A	Flare Gas Recovery Unit Was installed.
01/08/15 09:00	01/08/15 10:00	167.0			
01/08/15 13:00	01/10/15 08:00	165.1-669.5			
01/10/15 14:00	01/13/15 00:00	168.0-553.4			
01/13/15 01:00	01/20/15 00:00	164.5-1336.6			
01/20/15 10:00	01/20/15 13:00	163.5-175.8			
01/21/15 12:00	01/21/15 17:00	166.7-181.7			
01/21/15 17:00	01/28/15 07:00	166.8-472.6			
01/28/15 11:00	01/28/15 20:00	172.9-228.6			
01/30/15 05:00	01/30/15 07:00	179.0-255.5			
01/30/15 14:00	02/07/15 10:00	190.9-801.9			
02/07/15 22:00	02/16/15 17:00	162.4-819.2			
02/17/15 13:00	02/18/15 06:00	166.0-750.4			
02/18/15 08:00	02/21/15 06:00	172.6-1847.3			
02/21/15 12:00	02/22/15 06:00	168.4-1906.7			
02/22/15 08:00	02/22/15 11:00	172.5-189.1			
02/23/15 00:00	02/23/15 08:00	178.7-381.3			
02/23/15 16:00	02/24/15 15:00	217.0-798.4			
02/24/15 21:00	02/25/15 12:00	177.7-221.1			
02/25/15 14:00	02/25/15 19:00	164.5-176.7			
02/26/15 03:00	02/26/15 12:00	172.8-212.1			
02/26/15 19:00	02/27/15 00:00	164.8-191.9			
02/27/15 07:00	02/28/15 14:00	225.6-893.8			
02/28/15 15:00	02/28/15 17:00	165.6-171.5			
02/28/15 21:00	03/01/15 07:00	191.7-407.9			
03/01/15 11:00	03/03/15 07:00	332.7-1561.0			
03/03/15 11:00	03/09/15 09:00	194.7-2007.1			
03/09/15 13:00	03/10/15 03:00	171.5-322.7			
03/10/15 07:00	03/13/15 05:00	175.4-1173.1			
03/13/15 11:00	03/13/15 12:00	162.3			
03/13/15 17:00	03/13/15 21:00	172.1-207.2			
03/16/15 09:00	03/16/15 12:00	207.0-270.8			
03/16/15 18:00	03/17/15 00:00	168.8-247.8			
03/17/15 04:00	03/17/15 06:00	176.8-181.2			
03/18/15 08:00	03/18/15 13:00	164.7-210.5			
03/20/15 15:00	03/23/15 19:00	165.2-765.3			
03/23/15 20:00	03/23/15 21:00	163.7			
03/23/15 22:00	03/23/15 23:00	166.4			
03/24/15 00:00	03/24/15 03:00	167.1-173.3			
03/24/15 13:00	03/24/15 15:00	163.8-165.9			
03/24/15 20:00	03/24/15 22:00	162.4			
03/25/15 05:00	03/25/15 06:00	163.3			
03/25/15 14:00	03/25/15 21:00	165.4-234.1			
03/26/15 09:00	03/26/15 16:00	166.3-171.6			
03/26/15 22:00	03/27/15 04:00	164.8-169.8			
03/27/15 10:00	03/27/15 11:00	162.1			
03/29/15 09:00	04/02/15 09:00	163.9-321.1			
04/02/15 22:00	04/04/15 09:00	171.9-296.0			



Start Date/Time	End Date/Time	Magnitude of Emissions (ppm H <sub>2</sub> S)	SSM Related?	Nature and Cause of Malfunction	Corrective Action Taken/Preventative Measures
04/06/15 10:00	04/06/15 23:00	166.7-388.7	No	N/A	Flare Gas Recovery Unit Was installed.
04/09/15 00:00	04/09/15 04:00	206.2-484.4			
04/09/15 14:00	04/09/15 17:00	164.2-202.4			
04/09/15 21:00	04/10/15 03:00	183.1-234.4			
04/10/15 08:00	04/10/15 16:00	172.6-372.6			
04/10/15 19:00	04/11/15 06:00	167.1-272.1			
04/12/15 08:00	04/12/15 14:00	186.0-272.1			
04/12/15 15:00	04/12/15 23:00	164.0-189.4			
04/13/15 11:00	04/17/15 07:00	165.8-620.6			
04/17/15 10:00	04/21/15 07:00	163.6-657.0			
04/21/15 17:00	04/22/15 01:00	164.9-400.3			
04/22/15 13:00	04/22/15 17:00	192.7-282.5			
04/23/15 06:00	04/23/15 08:00	178.8			
04/23/15 14:00	04/23/15 21:00	168.3-204.9			
04/24/15 02:00	04/24/15 09:00	168.7-203.3			
04/24/15 15:00	04/25/15 10:00	165.3-391.8			
04/25/15 13:00	04/27/15 21:00	172.5-560.5			
04/28/15 01:00	04/29/15 20:00	170.1-279.8			
04/29/15 21:00	04/30/15 09:00	166.2-216.1			
04/30/15 20:00	04/30/15 21:00	170.3			
04/30/15 01:00	05/07/15 11:00	163.9-572.6			
05/07/15 12:00	05/13/15 11:00	162.3-1153.4			
05/13/15 16:00	05/13/15 17:00	163.0			
05/13/15 20:00	05/14/15 10:00	164.1-233.6			
05/15/15 18:00	05/15/15 20:00	178.6-179.1			
05/16/15 18:00	05/18/15 20:00	173.8-1346.5			
05/20/15 16:00	05/21/15 09:00	172.5-239.6			
05/22/15 18:00	05/23/15 18:00	167.0-416.1			
05/24/15 14:00	05/24/15 16:00	171.4-175.2			
05/24/15 18:00	05/25/15 21:00	168.0-237.0			
05/26/15 00:00	05/29/15 21:00	166.0-536.7			
05/29/15 23:00	05/30/15 19:00	168.1-268.2			
05/30/15 21:00	06/01/15 20:00	166.8-1100.2			
06/02/15 04:00	06/02/15 15:00	163.5-200.3			
06/03/15 06:00	06/03/15 07:00	167.7			
06/03/15 11:00	06/06/15 10:00	171.6-857.1			
06/06/15 14:00	06/15/15 04:00	165.2-1160.4			
06/15/15 15:00	06/17/15 11:00	166.4-798.9			
06/17/15 17:00	06/18/15 04:00	166.7-224.2			
06/18/15 09:00	06/20/15 12:00	166.5-647.5			
06/20/15 16:00	06/21/15 10:00	183.8-407.3			
06/21/15 14:00	06/24/15 01:00	171.5-559.7			
06/24/15 03:00	06/26/15 00:00	162.1-716.8			
06/26/15 03:00	06/26/15 21:00	167.1-367.6			
06/27/15 08:00	06/27/15 10:00	165.6-173.5			
06/27/15 15:00	06/27/15 13:00	218.4-424.1			
06/27/15 16:00	07/01/15 00:00	244.9-823.0			



42-045-00070

PA00029 3037



**Monroe Energy, LLC**  
**4101 Post Road**  
**Trainer, PA 19061**  
**(610) 364-8000**

November 9, 2016

**FedEx 7774 1757 8567**

Mr. James Rebarchak  
Commonwealth of Pennsylvania  
Department of Environmental Protection  
Southeast Regional Office  
2 East Main Street  
Norristown, PA 19401

**Re: Monroe Energy, LLC – Trainer Refinery**  
**40 CFR 63, Subpart UUU: Revised Semi-Annual Periodic Report**  
**40 CFR 60, NSPS J: Revised Semi-Annual Report**  
**Reporting Period: July 1, 2014– December 31, 2014**

Dear Mr. Rebarchak:

In accordance with 40 CFR Part 60 Subpart J and 40 CFR 63 Subpart UUU, Monroe Energy, LLC's Trainer Refinery hereby submits this revised semi-annual compliance report (per §63.1575(b)(2)) for the period beginning July 1, 2014– December 31, 2014.

Should you have any questions or comments regarding this revised report, please contact Mr. Matthew Torell, P.E. Environmental Leader, at (610) 364-8399.

Sincerely,

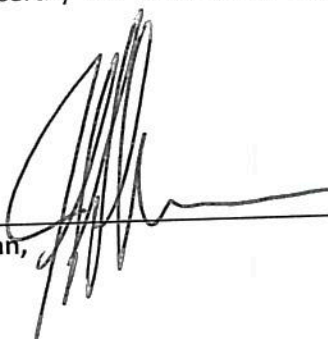
Haley Ilg  
Air Permit Compliance Lead

Enclosure

**FedEx 7774 1780 2870**  
U.S. EPA, Region III  
Director, Air Protection Division  
Mail Code 3AP20  
1650 Arch Street  
Philadelphia, Pa 19103-2029

**Responsible Official Certification**

Based upon information and belief formed after a reasonable inquiry, I, as a responsible official of the above-mentioned facility, certify the information contained in this report is accurate and true to the best of my knowledge.



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Jeffrey K. Warmann,  
CEO & President



**REVISED SEMIANNUAL PERIODIC REPORT**  
**Reporting Period: July 1, 2014– December 31, 2014**

**40 CFR Part 63 Subpart UUU**

The Refinery MACT 2 emission standards regulate the following refinery affected sources and parameters:

- 1) Fluidized Catalytic Cracking Unit (FCCU – Source ID 101)
  - a) CO and SO<sub>2</sub> (measured via CEMS) and Liquid to Gas Ratio (in lieu of PM),
- 2) Sulfur Recovery Unit (SRU – Source ID 102)
  - a) SO<sub>2</sub> (measured via CEMS)
- 3) Catalytic Reforming Unit (Platformer Unit – Source ID 119)
  - a) Chloride levels on catalyst on the catalyst entering and exiting the Platformer Gas Adsorption system
  - b) Daily Average Wet Gas Inlet Temperature < 350 °F
- 4) Bypass lines serving the above units
  - a) Platformer and SRU have bypass lines, FCC does not.

As required under §63.1575(d) and (e), the following information is provided for the FCC and SRU:

- (d)(1) The total operating time of each affected source during the reporting period: See Attachment 1.
- (d)(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken: See Attachment 2. If no deviations are listed in the attachment, the monitored parameter was in compliance with the applicable requirement.
- (d)(3) Information on the number, duration, and cause for monitor downtime incidents (including unknown cause, if applicable, other than downtime associated with zero and span and other daily calibration checks): See Attachment 1.
- (e)(1) The date and time that each malfunction started and stopped: See Attachment 2.
- (e)(2) The date and time that each continuous opacity monitoring system or continuous emission monitoring system was inoperative, except for zero (low-level) and high-level checks: See Attachment 1.
- (e)(3) The date and time that each continuous opacity monitoring system or continuous emission monitoring system was out-of-control, including the information in §63.8(c) (8): See Attachment 1.
- (e)(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period: See Attachment 2.

(e)(5) A summary of the total duration of the deviation during the reporting period (recorded in minutes for opacity and hours for gases and in the averaging period specified in the regulation for other types of emission limitations), and the total duration as a percent of the total source operating time during that reporting period: See Attachment 1

(e)(6) A breakdown of the total duration of the deviations during the reporting period and into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes: See Attachment 1

(e)(7) A summary of the total duration of downtime for the continuous opacity monitoring system or continuous emission monitoring system during the reporting period (recorded in minutes for opacity and hours for gases and in the averaging time specified in the regulation for other types of standards), and the total duration of downtime for the continuous opacity monitoring system or continuous emission monitoring system as a percent of the total source operating time during that reporting period: See Attachment 1.

(e)(8) A breakdown of the total duration of downtime for the continuous opacity monitoring system or continuous emission monitoring system during the reporting period into periods that are due to monitoring equipment malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes: See Attachment 1

(e)(9) An identification of each HAP that was monitored at the affected source: See Attachment 1.

(e)(10) A brief description of the process units: See Attachment 3

(e)(11) The monitoring equipment manufacturer(s) and model number(s): See Attachment 1.

(e)(12) The date of the latest certification or audit for the continuous gas analysis system or continuous emission monitoring system: See Attachment 1.

(e)(13) A description of any change in the continuous emission monitoring system or continuous opacity monitoring system, processes, or controls since the last reporting period: See Attachment 1.

#### **Start-up, Shutdown, and Malfunction Plans (SSMP)**

Any startup, shutdown, and malfunction at the Facility which occurred during the reporting period were managed consistent with the facility's SSMP.

#### **40 CFR Part 60 Subpart J**

The NSPS J Regulations emission standards regulate the following refinery affected sources and parameters:

- 1) Fluidized Catalytic Cracking Unit (FCCU – Source ID 101)
  - a) CO and SO<sub>2</sub> (measured via CEMS) and Liquid to Gas Ratio (in lieu of PM),
- 2) Sulfur Recovery Unit (SRU – Source ID 102) SO<sub>2</sub> (measured via CEMS)
- 3) Main Flare (Source ID 103) H<sub>2</sub>S (measured via CEMS)
- 4) Sour Gas Flare (Source ID 121) H<sub>2</sub>S (measured via CEMS)
- 5) North Side Fuel System Consumers (listed below) H<sub>2</sub>S (measured via CEMS)  
Boiler 9 (Source ID 034); Kero Heater (Source ID 735); 543 Crude Heater (Source ID 744); Boiler 10 (Source ID 035); Diesel HTU Heater (Source ID 736); 544 Crude Heater (Source ID 745); Boiler 14 (Source ID 053); 541 Vac Heater (Source ID 742); 544 Vac Heater (Source ID 746); FCC Feed Heater (Source ID 733); and 542 Vac Heater (Source ID 743)
- 6) South Side Fuel System Consumers (listed below) H<sub>2</sub>S (measured via CEMS)  
Naphtha Heater (Source ID 737); Platformer Feed Heater (Source ID 738); Isocracker 1<sup>st</sup> Stage Heater (Source ID 739); Isocracker Splitter Reboiler (Source ID 740) D2 VGO Hydrotreater Feed Heater (Source ID 741).

In accordance with 40 CFR 60.7(d), the excess emissions and monitoring system summary report is included in Attachment 1. If excess emissions are greater than 1%, or total CMS downtime is greater than 5%, the excess emission report per 40 CFR 60.7(c) is included in Attachment 4.

**Attachment 1: Excess Emissions and Monitoring System Performance Summary Report**



# EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO<sub>2</sub> NO<sub>x</sub> TRS H<sub>2</sub>S **CO** Opacity

Reporting period dates: From July 1, 2014 to December 31, 2014

Company: Monroe Energy, LLC

Emission Limitation: 500 ppm (1 hour average)

Address: 4101 Post Rd, Trainer PA 19061

Monitor Manufacturer: Servomex

Model No.: 04900C1-4202

Date of Latest CMS Certification or Audit: 12/16/2014 ( Linearity Test)

Process Unit(s) Description: FCCU

Total source operating time in reporting period <sup>1</sup>: 4,288 hours

Emission data summary <sup>1</sup>		CMS performance summary <sup>1</sup>	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	0	a. Monitor equipment malfunctions	9
b. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
c. Process problems	0	c. Quality assurance calibration	70
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	79
3. Total duration of excess emissions x (100) / [Total source operating time]	0.0 % <sup>2</sup>	3. [Total CMS Downtime] x (100) / [Total source operating time]	1.8 % <sup>2</sup>

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

**Note:** On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**



# EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO<sub>2</sub> NO<sub>x</sub> TRS H<sub>2</sub>S CO Opacity

Reporting period dates: From July 1, 2014 to December 31, 2014

Company: Monroe Energy, LLC

Emission Limitation: 50 ppm (7-day rolling Average); 25 ppm (365-day rolling average)

Address: 4101 Post Rd, Trainer PA 19061

Monitor Manufacturer: AMETEK Model 921

Model No.: Model 921

Date of Latest CMS Certification or Audit: 6/28/2014 (Linearity Test)

Process Unit(s) Description: FCCU

Total source operating time in reporting period <sup>1</sup>: 4,288 hours

Emission data summary <sup>1</sup>		CMS performance summary <sup>1</sup>	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	<u>0</u>	a. Monitor equipment malfunctions	<u>62</u>
b. Control equipment problems	<u>0</u>	b. Non-Monitor equipment malfunctions	<u>0</u>
c. Process problems	<u>0</u>	c. Quality assurance calibration	<u>11</u>
d. Other known causes	<u>0</u>	d. Other known causes	<u>0</u>
e. Unknown causes	<u>0</u>	e. Unknown causes	<u>0</u>
2. Total duration of excess emissions	<u>0</u>	2. Total CMS Downtime	<u>73</u>
3. Total duration of excess emissions x (100) / [Total source operating time]	<u>0.0</u> % <sup>2</sup>	3. [Total CMS Downtime] x (100) / [Total source operating time]	<u>1.7</u> % <sup>2</sup>

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

**Note:** On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

# EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO<sub>2</sub> NO<sub>x</sub> TRS H<sub>2</sub>S CO Opacity

Reporting period dates: From July 1, 2014 to December 31, 2014

Company: Monroe Energy, LLC

Emission Limitation: 250 ppm (12 hour Rolling Average)

Address: 4101 Post Rd, Trainer PA 19061

Monitor Manufacturer: AMETEK

Model No.: Model 921

Date of Latest CMS Certification or Audit: 12/17/2014 (Linearity Test)

Process Unit(s) Description: Claus Sulfur Recovery Plant

Total source operating time in reporting period <sup>1</sup>: 4,416 hours

Emission data summary <sup>1</sup>		CMS performance summary <sup>1</sup>	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	0	a. Monitor equipment malfunctions	47
b. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
c. Process problems	0	c. Quality assurance calibration	7
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	54
3. Total duration of excess emissions x (100) / [Total source operating time]	0.0 % <sup>2</sup>	3. [Total CMS Downtime] x (100) / [Total source operating time]	1.2 % <sup>2</sup>

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

**Note:** On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

# EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO<sub>2</sub> NO<sub>x</sub> TRS **H<sub>2</sub>S** CO Opacity

Reporting period dates: From July 1, 2014 to December 31, 2014

Company: Monroe Energy, LLC

Emission Limitation: 162 ppm H<sub>2</sub>S (3 Hour Average)

Address: 4101 Post Rd, Trainer PA 19061

Monitor Manufacturer: Applied Automation

Model No.: AV4070

Date of Latest CMS Certification or Audit: 12/05/2014 (Linearity Test)

Process Unit(s) Description: North Fuel Gas System

Total source operating time in reporting period <sup>1</sup>: 4,416 hours

Emission data summary <sup>1</sup>		CMS performance summary <sup>1</sup>	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	<u>0</u>	a. Monitor equipment malfunctions	<u>7</u>
b. Control equipment problems	<u>0</u>	b. Non-Monitor equipment malfunctions	<u>0</u>
c. Process problems	<u>4</u>	c. Quality assurance calibration	<u>2</u>
d. Other known causes	<u>0</u>	d. Other known causes	<u>0</u>
e. Unknown causes	<u>0</u>	e. Unknown causes	<u>0</u>
2. Total duration of excess emissions	<u>0</u>	2. Total CMS Downtime	<u>9</u>
3. Total duration of excess emissions x (100) / [Total source operating time]	<u>0.1</u> % <sup>2</sup>	3. [Total CMS Downtime] x (100) / [Total source operating time]	<u>0.2</u> % <sup>2</sup>

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

**Note:** On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**



## EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One):      SO<sub>2</sub>      NO<sub>x</sub>      TRS      **H<sub>2</sub>S**      CO      Opacity

Reporting period dates:      From      July 1, 2014      to      December 31, 2014

Company:      Monroe Energy, LLC

Emission Limitation:      162 ppm H<sub>2</sub>S (3 Hour Average)

Address:      4101 Post Rd, Trainer PA 19061

Monitor Manufacturer:      Applied Automation

Model No.:      AV4071

Date of Latest CMS Certification or Audit:      12/10/2014 (Linearity Test)

Process Unit(s) Description:      South Fuel Gas System

Total source operating time in reporting period <sup>1</sup>:      4,416 hours

Emission data summary <sup>1</sup>		CMS performance summary <sup>1</sup>	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
f. Startup/shutdown	0	a. Monitor equipment malfunctions	26
g. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
h. Process problems	0	c. Quality assurance calibration	2
i. Other known causes	0	d. Other known causes	0
j. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	28
3. Total duration of excess emissions x (100) / [Total source operating time]	0.0 % <sup>2</sup>	3. [Total CMS Downtime] x (100) / [Total source operating time]	0.6 % <sup>2</sup>

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

**Note:** On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

## EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One):      SO<sub>2</sub>      NO<sub>x</sub>      TRS      H<sub>2</sub>S      CO      Opacity

Reporting period dates:      From July 1, 2014 to December 31, 2014

Company: Monroe Energy, LLC

Emission Limitation: 162 ppm H2S (3 hour Average)

Address: 4101 Post Rd, Trainer PA 19061

Monitor Manufacturer: Emerson Process Management

Model No.: Daniel 500 GC

Date of Latest CMS Certification or Audit: 12/11/2014 (Linearity Test)

Process Unit(s) Description: Main Flare

Total source operating time in reporting period <sup>1</sup>: 4,416 hours

Emission data summary <sup>1</sup>		CMS performance summary <sup>1</sup>	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	0	a. Monitor equipment malfunctions	11
b. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
c. Process problems	0	c. Quality assurance calibration	15
d. Other known causes	3,634	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	26
3. Total duration of excess emissions x (100) / [Total source operating time]	82.3 % <sup>2</sup>	3. [Total CMS Downtime] x (100) / [Total source operating time]	0.6 % <sup>2</sup>

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted. **See Attachment 4.**

**Note:** On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**



## EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One):      SO<sub>2</sub>      NO<sub>x</sub>      TRS      **H<sub>2</sub>S**      CO      Opacity

Reporting period dates:      From      July 1, 2014      to      December 31, 2014

Company:      Monroe Energy, LLC

Emission Limitation:      162 ppm H<sub>2</sub>S (3 hour Average)

Address:      4101 Post Rd, Trainer PA 19061

Monitor Manufacturer:      Emerson Process Management

Model No.:      Daniel 500 GC

Date of Latest CMS Certification or Audit:      5/21/2014 (Linearity Test)

Process Unit(s) Description:      Sour Gas Flare

Total source operating time in reporting period <sup>1</sup>:      4,416 hours

Emission data summary <sup>1</sup>		CMS performance summary <sup>1</sup>	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
f. Startup/shutdown	0	a. Monitor equipment malfunctions	106
g. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
h. Process problems	0	c. Quality assurance calibration	0
i. Other known causes	0	d. Other known causes	0
j. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emissions	0	2. Total CMS Downtime	106
3. Total duration of excess emissions x (100) / [Total source operating time]	0.0 % <sup>2</sup>	3. [Total CMS Downtime] x (100) / [Total source operating time]	3.8 % <sup>2</sup>

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

**Note:** On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

**Attachment 2 – Deviation Information**

**Source:** North Fuel Gas System (and associated consumers)  
**Standard:** 3-hour H<sub>2</sub>S Concentration < 162 ppm

Start	Stop	Duration	Caused by SSM event?	Nature and Cause of Event?	Corrective Action Taken?
09/06/2014 15:00	09/06/2014 16:00	1 hour	No	High concentration (greater than 162 ppm, 3-hour rolling average) H <sub>2</sub> S in the north side fuel gas system, unknown cause	Amine circulation rates were increased and/or fresh amine was added to the system.
09/07/2014 14:00	09/07/2014 17:00	3 hours	No		

**Attachment 3-Process Descriptions**

### **FCCU Process Description**

The Fluidized Catalytic Cracking Unit (FCCU) is a refinery process unit used for the production of gasoline. Heavy oil, which is used as the feedstock, is catalytically cracked in a fluidized catalyst bed to produce C3 olefins, C4 olefins, and isobutanes. In the cracking reactor, heavy carbonaceous materials (coke) become deposited on the catalyst, requiring continuous regeneration. The catalyst is circulated to a fluidized bed regenerator where these deposits are combusted. Most of the catalyst particles entrained in the regenerator flue gas are then removed in two stages of cyclones within the regenerator vessel and then are returned to the fluidized bed reactor.

At the Trainer Refinery, the FCCU control devices include a CO Boiler for CO reduction, an Enhanced Selective Non-Catalytic Reduction (eSNCR) unit for NO<sub>x</sub> reduction, an electrostatic precipitator for PM reduction and a wet gas scrubber for PM and SO<sub>2</sub>.

### **Catalytic Reforming Unit (Platformer Unit)**

The refinery operates one Catalytic Reforming Unit. The purpose of the Platformer is to upgrade low octane feed sources, Heavy Naphtha and Heavy Isocrackate, into a high-octane gasoline component and hydrogen gas. The feed combined with hydrogen recycle gas is heated and passed over a platinum catalyst, where it is converted from low octane naphtha to a gasoline-blending component with a design research octane number in the range of 97 - 101.

### **SRU**

The Claus Sulfur Recovery Unit is designed to react feed H<sub>2</sub>S and SO<sub>2</sub> into recoverable sulfur using two trains in parallel. Normally only one train is required to be on-line. The feeds to the unit are sour water gases and acid gases from the Sour Water Stripper and the Amine Unit. Each train consists of a thermal reactor, three catalytic reactors, a steam generator and a 4 pass sulfur condenser. Medium and low-pressure steam is generated in the condensers. The sulfur product is stored in a common heated pit until shipped out by railcar.

The Scot unit is designed to treat the tail gas from both trains of the Sulfur Recovery Unit. The Scot Unit reduces the H<sub>2</sub>S content in the tail gas before it is sent to the incinerator stack. The combination of the Sulfur and Scot Units recovers about 99.8% of the sulfur in the feed streams. The Scot Unit consists of an in-line burners, catalytic reactor, quench tower, amine absorber, stripper, and incinerator.

### **Bypass Lines**

The FCCU does not have any bypass lines. The Platformer Chlorsorb Unit line was not bypassed during this reporting period. The Sulfur Recovery Unit line was not bypassed during this reporting period.



**Attachment 4 – Excess Emissions and Monitoring Systems Performance Report (40 CFR 60.7**  
**(c))**

**Main Flare Excess Emissions Report**

Start Date/Time	End Date/Time	Magnitude of Emissions (ppm H <sub>2</sub> S)	SSM Related?	Nature and Cause of Malfunction	Corrective Action Taken/Preventative Measures
07/01/14 00:00	07/01/14 09:00	170.2-188.2	No	N/A	Flare Gas Recovery Unit Was installed.
07/01/14 16:00	07/02/14 00:00	170.0-458.6			
07/02/14 04:00	07/02/14 16:00	170.9-206.5			
07/10/14 13:00	07/10/14 17:00	169.6-274.5			
07/15/14 11:00	07/15/14 22:00	186.8-555.4			
07/16/14 12:00	08/15/14 21:00	165.9-1790.2			
08/15/14 23:00	08/28/14 15:00	171.0-2126.4			
08/29/14 02:00	09/19/14 09:00	176.9-1471.4			
09/19/14 13:00	10/10/14 18:00	191.8-2055.0			
10/10/14 21:00	10/12/14 14:00	174.8-347.1			
10/13/14 22:00	10/14/14 04:00	162.7-279.0			
10/14/14 06:00	10/14/14 09:00	177.5-181.5			
10/14/14 19:00	10/15/14 03:00	163.4-176.6			
10/15/14 10:00	10/15/14 15:00	165.6-219.2			
10/18/14 14:00	10/19/14 20:00	165.4-302.2			
10/20/14 16:00	11/02/14 00:00	162.5-411.1			
11/02/14 01:00	11/02/14 05:00	163.9-667.3			
11/02/14 17:00	11/03/14 18:00	171.1-311.5			
11/03/14 21:00	11/04/14 15:00	177.1-229.4			
11/05/14 12:00	11/05/14 16:00	164.5-225.3			
11/05/14 18:00	11/08/14 07:00	162.0-407.1			
11/08/14 08:00	11/09/14 21:00	168.6-664.5			
11/11/14 08:00	11/11/14 11:00	162.2-165.1			
11/13/14 08:00	11/13/14 12:00	165.3-176.5			
11/13/14 22:00	11/14/14 18:00	163.7-196.2			
11/15/14 07:00	11/15/14 12:00	163.9-171.4			
11/16/14 09:00	11/16/14 10:00	180.4-182.1			
11/16/14 23:00	11/17/14 01:00	163.4-164.6			
11/17/14 19:00	11/18/14 00:00	162.1-173.6			
11/18/14 08:00	11/18/14 19:00	163.2-184.0			
11/19/14 01:00	11/19/14 03:00	163.4-167.4			
11/19/14 07:00	11/19/14 10:00	179.1-194.4			
11/19/14 17:00	11/19/14 18:00	189.2			
11/20/14 12:00	11/20/14 18:00	162.1-619.1			
11/22/14 16:00	12/11/14 15:00	173.9-1025.2			
12/11/14 19:00	12/13/14 11:00	414.0-601.9			
12/13/14 19:00	01/01/15 00:00	171.0-539.7			